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APPLICANT: FUJITSU LTD;

INVENTOR: SHIOTANI YOSHIMI;

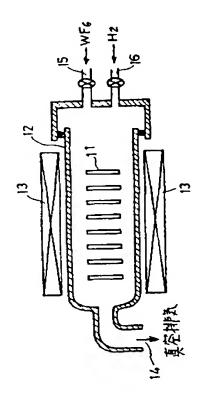
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TITLE

SELECTIVE GROWING METHOD FOR

TUNGSTEN FILM



ABSTRACT: PURPOSE: To grow W films having required film thicknesses selectively on semiconductor substrates by admitting a reactive gas consisting of WF6 and H2 into a reaction chamber, executing thermal cracking and intermittently stopping the inflow of the reactive gas to increase the vacuum degree in the reaction chamber.

> CONSTITUTION: An Si substrate 11 is disposed in the reaction furnace 12 subjected to vacuum evacuation 14 and WF<sub>6</sub> and H<sub>2</sub> are admitted through respective introducing ports 15, 16 into the furnace. The reactive gas admitted into the furnace is heated by a heating element 13 and is thermally cracked. The W formed by the reaction  $WF_6+3H_2\rightarrow W+6HF$  is selectively grown on the above-mentioned Si substrate 11. The admission of the reactive gas in the above-mentioned operation is intermittently stopped and the inside of the furnace 12 is evacuated to a vacuum to once suck and remove the excess HF formed by the above-mentioned reaction. The admission and thermal cracking of the reactive gas are thereafter executed and the same operation is subsequently repeated. The W films having the required film thicknesses are thereby grown selectively on the Si substrates 11.

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